



**MISSOURI DEPARTMENT OF TRANSPORTATION
MATERIALS ENGINEERING
Jefferson City, Missouri**

**Test Method
MoDOT T37**

**APPARENT SPECIFIC GRAVITY OF FINE
AGGREGATE FOR BITUMINOUS MIXTURES**

1.0 SCOPE.

This method of test, which is a modification of AASHTO T133 (ASTM C188) is used for determining the apparent specific gravity of fine aggregate proposed for use in bituminous mixtures.

2.0 EQUIPMENT.

- (a) Flask - The standard Le Chatelier Flask conforming to the dimensions shown in Figure 1 of AASHTO T133 (ASTM C188).
- (b) Tank - A water bath capable of maintaining a temperature of 23 ± 1.7 C (73.4 ± 3 F.).
- (c) Balance - A weighing device having a capacity of 100 g or more and is sensitive and readable to 0.1 g.
- (d) Kerosene - Free of water

3.0 SAMPLE PREPARATION.

Obtain a representative sample of the fine aggregate (passing No. 4 sieve) weighing approximately 100 g., dry to constant weight at 110 ± 5 C (230 ± 9 F), and cool to room temperature. Weigh out a representative sample corresponding to the specific gravity of the material as shown below.

<u>Specific Gravity</u>	<u>Approximate Weight of Sample</u>
over 3.0	65 g
2.0 to 3.0	55 g
Under 2.0	35 g



4.0 TEST PROCEDURE

- (a) Fill the Le Chatelier Flask with kerosene up to a point on the stem slightly above the zero line, and dry the inside of the flask above the 18 ml. line.
- (b) Immerse the flask in the constant temperature water bath, maintained at 23 ± 1.7 C (73.4 ± 3 F), until the contents of the flask attain the same temperature as the bath. maintain the water level of the bath so that it is above the level of the kerosene in the immersed flask. The use of a loose-fitting lead ring collar of such diameter that it can be placed over the stem of the flask and rests on the bulb will keep the flask upright in the water bath.
- (c) Remove the flask from the bath and record the level of the kerosene to the nearest 0.1 ml. along with the flask and sample identification numbers.
- (d) Pour the weighed test sample slowly into the flask and brush any adhering dust down into the flask below the lower portion of the stopper position. Insert the stopper in the flask, and remove the entrapped air by rolling the flask in an inclined position and by gently whirling it in a horizontal circle.
- (e) Immerse the flask in the water bath, and allow it to remain for a minimum of one hour.
- (f) Remove the flask and again remove the entrapped air from the sample by rolling and whirling the flask.
- (g) Immerse the flask in the water bath for approximately 20 minutes bring to constant temperature.
- (h) Remove the flask and record the level of the kerosene to the nearest 0.1 ml.
- (i) Pour out the sample and rinse the flask clean with kerosene.

5.0 CALCULATIONS

- (a) The difference between the initial reading and the final reading represents the volume of kerosene displaced by the volume of the fine aggregate used in the test.
- (b) Calculate the apparent specific gravity from the following formula:

$$\text{Apparent Specific Gravity} = \frac{\text{Weight of oven-dry sample in grams}}{\text{Displacement in milliliters}}$$

